**FIG. 2**

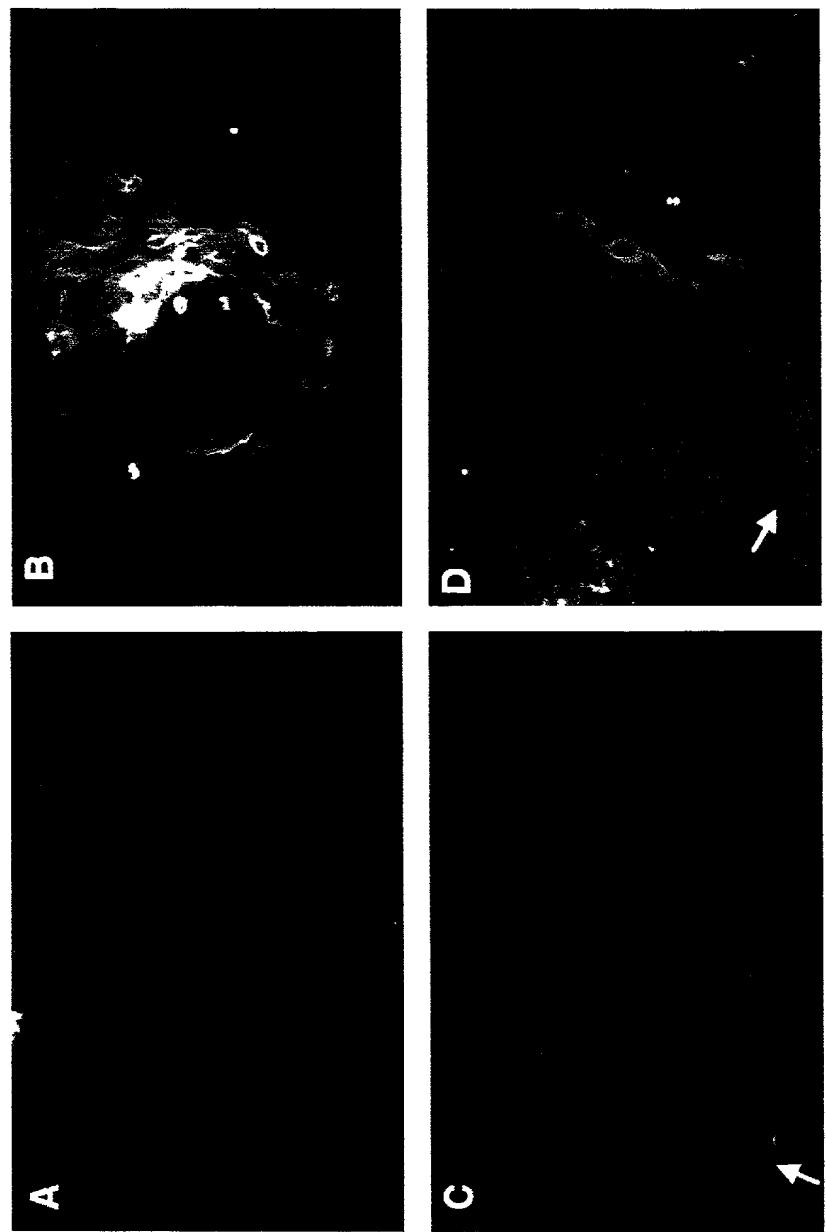
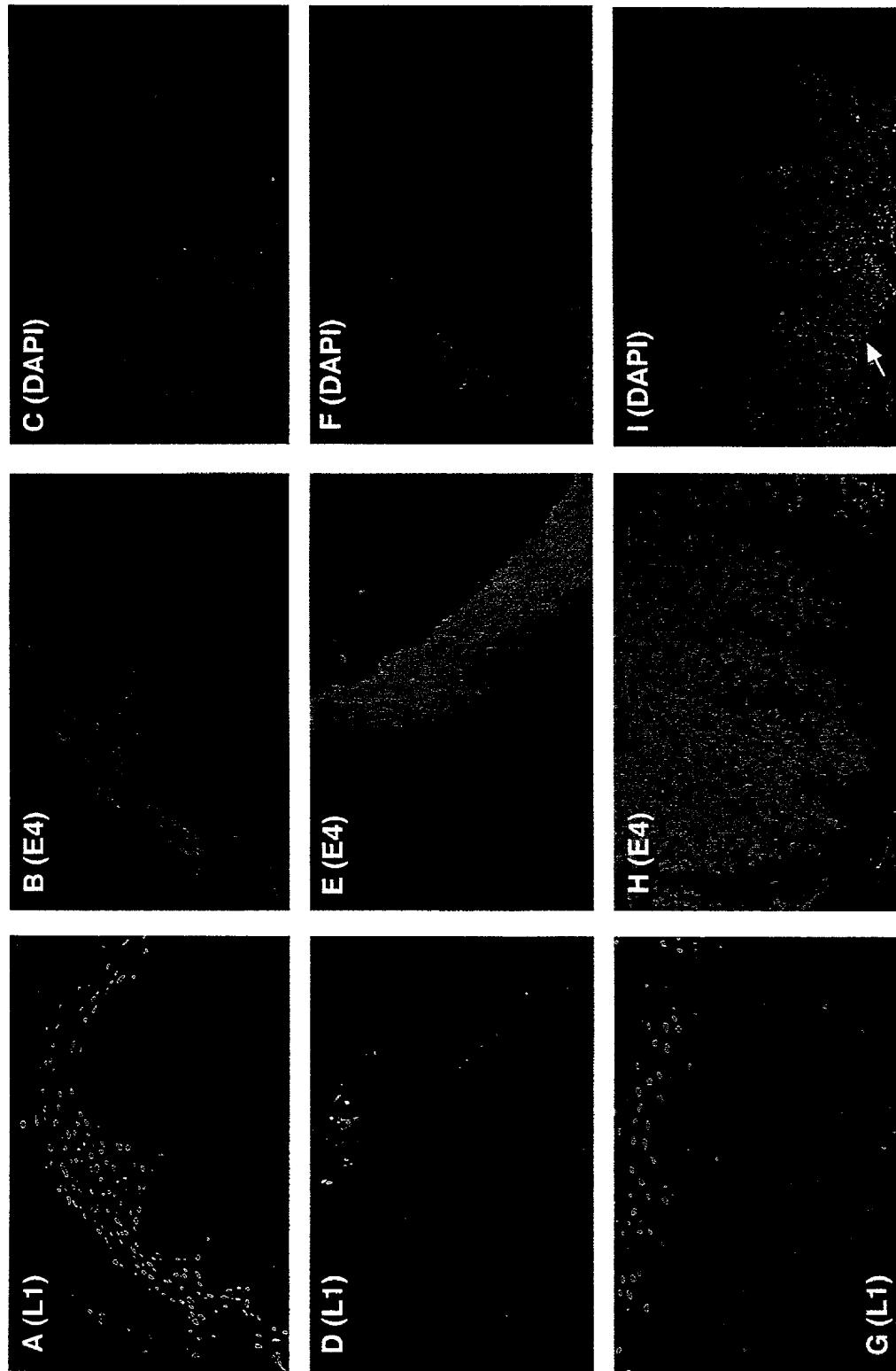


FIG. 3

**FIG. 4**

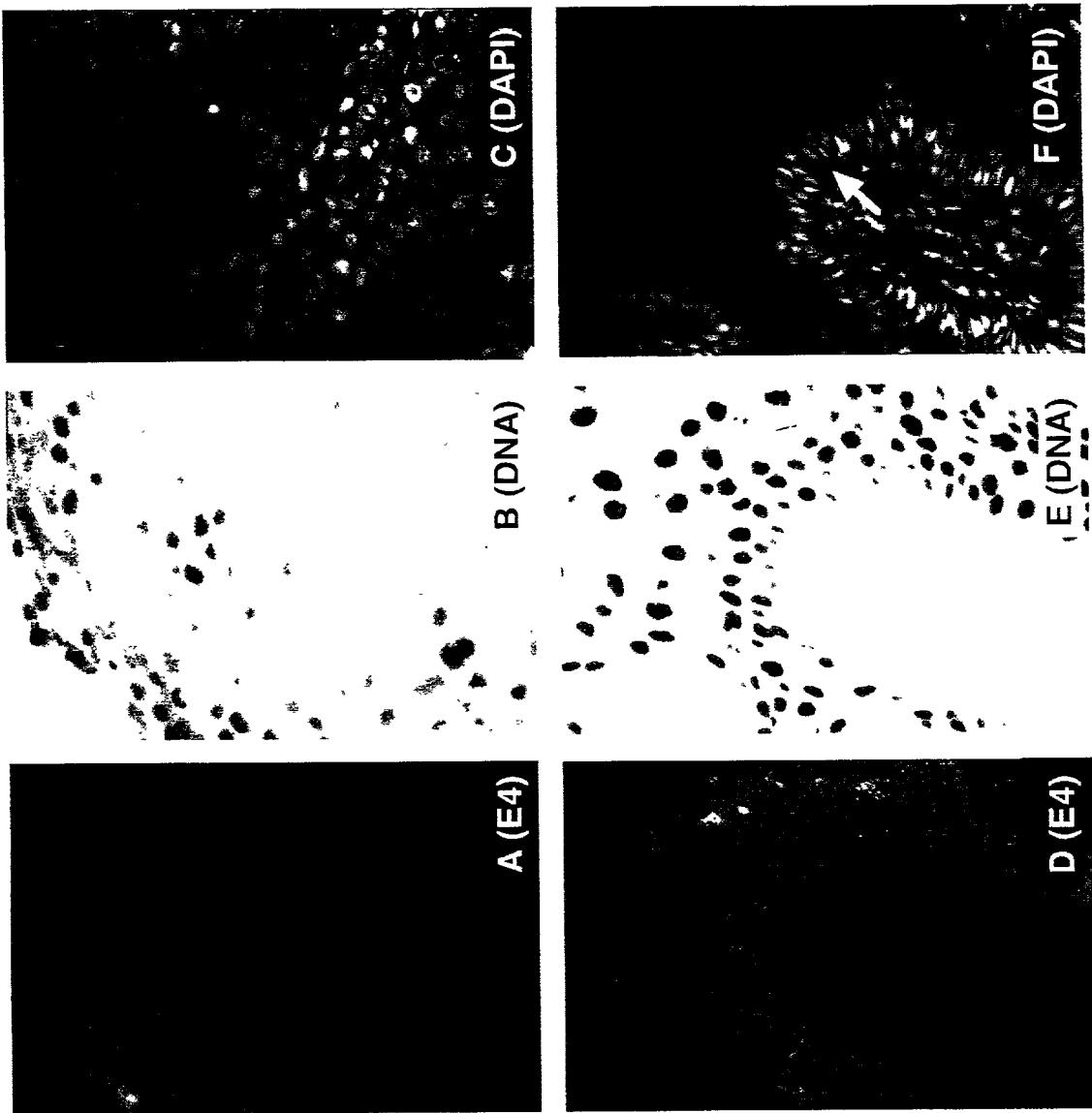


FIG. 5

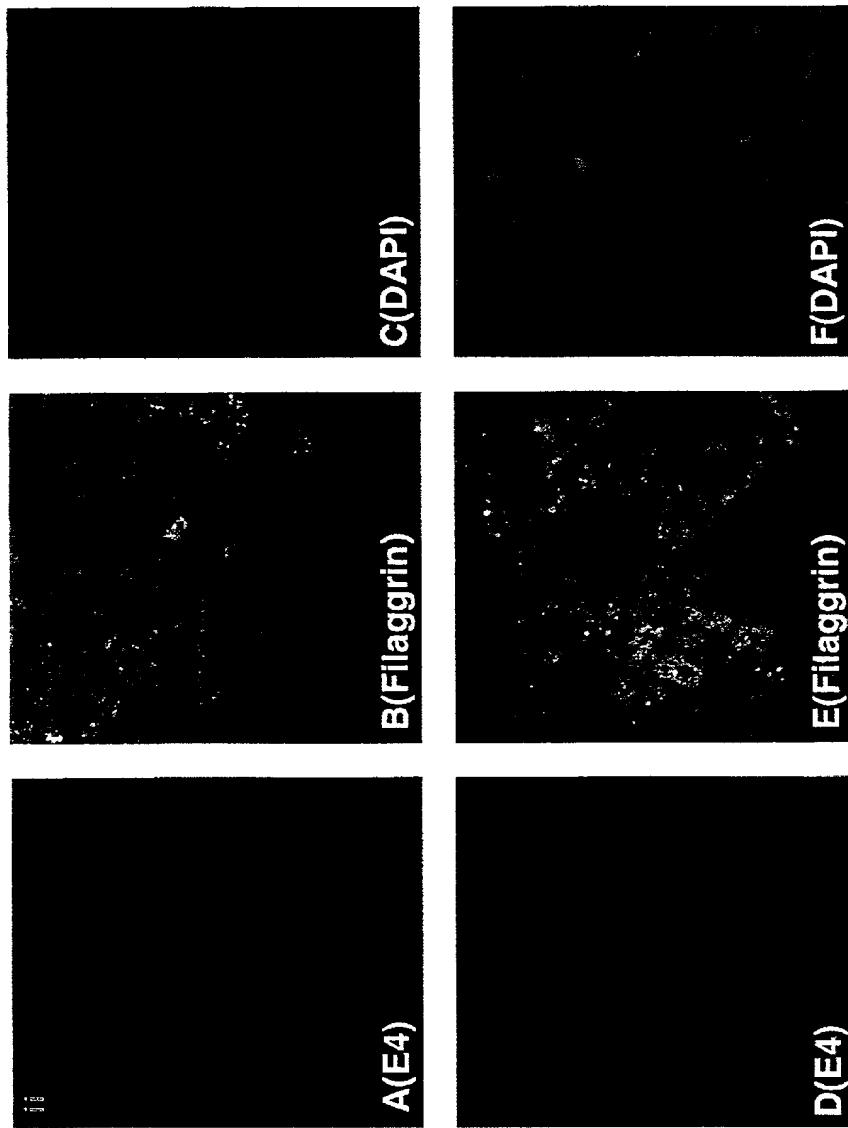


FIG. 6(i)

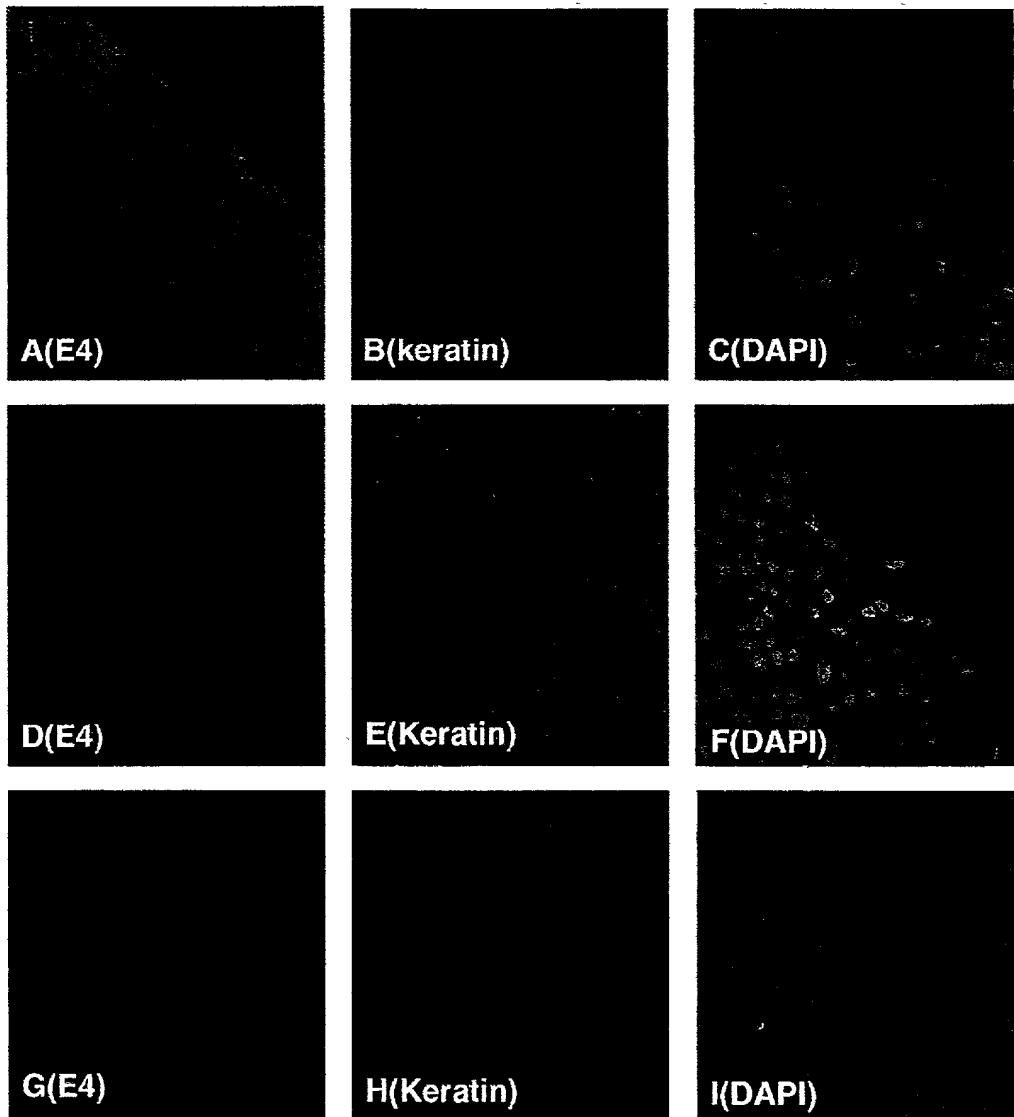


FIG. 6(ii)

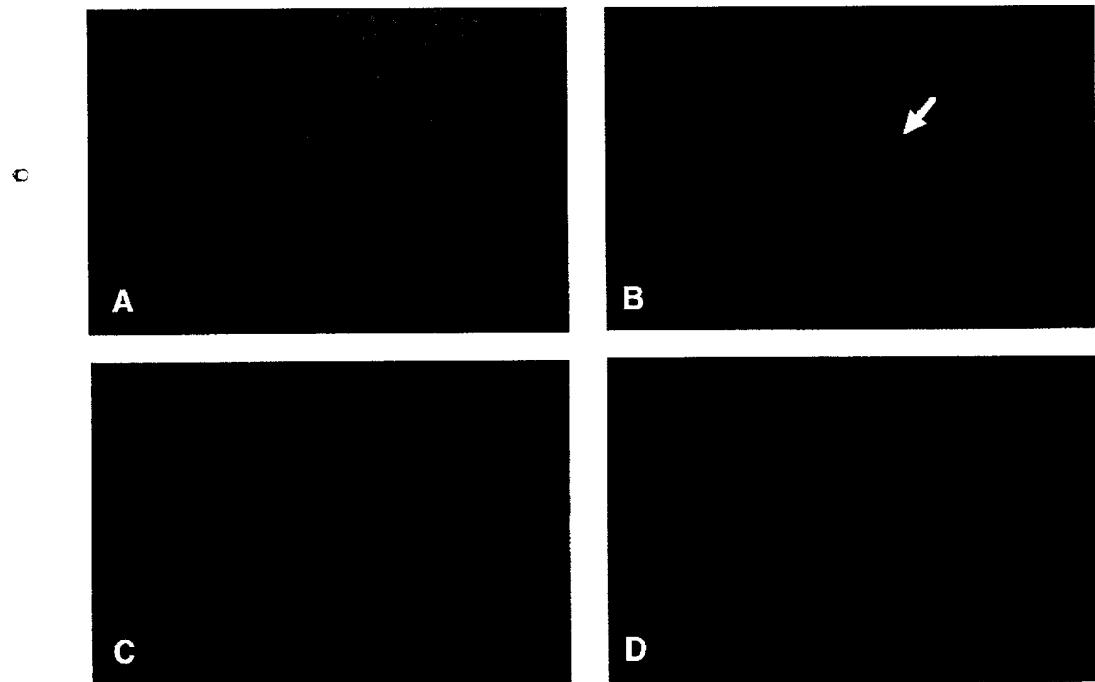


FIG. 7

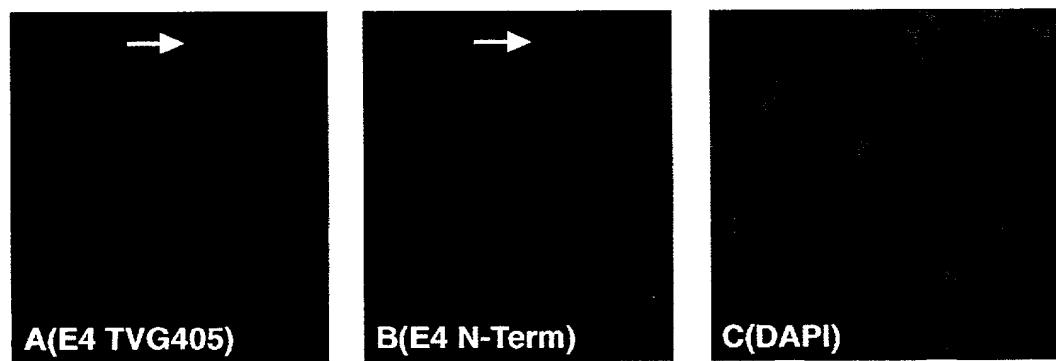


FIG. 8

CHARGED REGION....

most-likely	PPPPP.RP..WAGPKKP.....TRGPPRRRL...E..SDS.....	51
HPV54	HH..V..TT.-Q-Q..SRA.....-..NEL.....	43
HPV32	-SQGV.TA..TQTAQTEY..Y-KT--PP-R...-..N-T.....	61
HPV42	-L..T.TT..TQTVOTEQ..HT-C.-SKPH-H...-..N-T.....	59
HPV3	K-RWA--.KDRS-SD...SDS...-ST...GS..S-.....	46
HPV28	K-RWA--.KDRS-ND...SDS...-HST...G..-S-.....	46
HPV10	K-RWA--.RDRN-SD...SDS...-ST...D..-T-.....	46
HPV29	K-RWG.LR..RDRNGNDA..GLKQSGLGHSS...S..-S-.....	52
HPV61	--A--P-RH--.PRC.....I..-..	49
HPV2a	QEQLR--.KR..C-P-RRQ...RV...-PS...A..-V-.....	61
HPV27	QEQLR-Q.TC..C-P-RRH...RV...-PS...A..-G-.....	58
HPV57	QS...-..HSRTPPRR..HRV...-HPS...A..-G-.....	53
HPV26	-T..C..-..-R--...-..HTQ...-..-D.....	45
HPV51	L..PA..-..-..-..HNS...-..N-X.....	42
HPV30	--..-..-T--..RP..PHGR...-..NVL.....	46
HPV53	--..-..-T-H..HPC...G-E...N..VPE.....	44
HPV56	--..-..-T-T-..QY...PT...D..QEN.....	42
HPV66	--..L..-..T-..RY...PT...D..QEN.....	42
HPV18	A..C..-..QR...-A..-..L..H-L.....	44
HPV45	K..H..-..-QN-..S..-..L..-..L.....	44
HPV39	-Q..Q..H..-..Q..S..-..-..L.....	43
HPV70	-Q..Q..H..-..L..S..-..A..-..VE.....	43
HPV59	K..-..T..-..RG...-..V..-..-..Q.....	44
HPV7	-T..-..C..TT..PT..C..-..PPK...Y..TTT.....	45
HPV40	-T..-..T.P..PQR-P-R...S.A-P-H-P...-..-E.....	48
HPV16	K..-..S..-..-..H..-..-..S..-..Q.....	41
HPV35h	K..-..A..-..-..Q..-..-..QIT..N..DFE.....	43
HPV31	K..-..A..-..-..V-V..C..GG..L..-..Q.....	46
HPV52	-Q..C..-..V--TH..TYN..HH..-..N..D-D.....	40
HPV33	--..HH-Q..-..-..PN..D..D-L.....	30
HPV58	--..TTK..-..V..-..H-G..Q..-..D.....	29
RhPV1	-T..-..P..-R-T..C..-..GH..-..Q..-..EC.....	43
HVP6b	-L..C..O..-..R-T..-..OC..K..-..C..NEH.....	40
HPV11	LQ..C..-..P..-..R-T..AC..-..-..G..-..EH.....	41
HPV44	HR-H-HC..L-P-RTA..W..-..-HV..N..DPE.....	48
HVP55	HR-HLHC..P-P-RNA..W..-..-HV..N..DPE.....	48
HVP13	-Q..C..A..-..R-N..VC..K..-..V..N-N.....	43
PCPV1	AQ..CH..PS..-Q-I..VC..K..-..PI..N..DFE.....	44
HPV34	--..-..THRTR..VC..QHGN..G..I--..	35
HPV19	GTRDDLPAGPDDK..K..-..RN..DQG-N..PSP-RG-G-G..F..RLTGHDHPN	93
HPV25	PPAGHDDSKPKRARGDQG-S-G..GP..SPA-V..SD--RG-G-G..NL..RLSGDQDPN	105
HPV20	GTDGDLPLVGQQGEQ-K..-..A..RGDGPGQS..PSPS-G-G-GR..G..TGLGLGL	91
HPV21	GTDGDRPVGPGER-K..-..I..KG-DRG..-..SP-RG-G-GR..G..-..PDGPDP	90
HPV14d	EGTDADRPVGPGER-K..-..G..RG-DRG..-..SP-RG-G-G..G..-..LDPGRNR	92
HPV5	SQGDRKRSKGDQGPDTGPGLGPGRC-S-G..T..-..LGP-PG-G..PR-S-RLGPLQ..A..DRDPEE..	115
HPV36	.GQGDRKRSKGDQGPDTGPGLPDRG-S-G..-..T-Q..PL--..GL--R-SP--..G..-SGYQPD..	114
HPV47	QGDRKRTKGDPDPGPGVLPKTL--..P..PT--GLRRSTRLVLV-GQGPPP..D..LPA.....	116
HPV12	..GDRKRSKGDQGRDTAPS LTGRA-S-K..G..-..L-P-PY-..GPP--R-SH--..G..TGGRD..	107
HPV8	..QDRKKSRGDQGRDTAPGLAPGRS-GL..G..-..L-P-PY-..GP--R-SP-Q..F..GPGPDRDPE	111
HPV24	..PLTPDADDPPRPGKRSKGDEHG-A-G..-..A..PL-LDL..DPPQ-G-DQPPG..A..TGG.....	102
HPV15	..TTEKNLALQP--..GG..-..KD..DKD--TQ..QGDQ--QGGDK..K..-..PG.....	86
HPV17	..DTGGKRLALQ--..P..GTKD-TS..DDQ--HGGDK..Q..-..PG.....	79
HPV37	..EEKHLALQ--..GK..KDKE-T-Q..QGDQ--PGGNK..Q..PPG.....	82
HPV9	..PPPGRKDRDKEKEKEKEK..K..-..TT-D-G..-..DP..RVEQKPK..G..EG-..	93
HPV22	..LVLQSP-SGGKKG..RDKD--Q..QGEEK-DQGP..-..AP-..	74
HPV23	..KHLALQ--..G.K..KDKE--S..PGEEK-DQGP..G..AE-..	71
HPV38	..DTGEKHLALQ--..AG..KGKD-EK..-..PQA-KGEEK..A..DQG.....	71
HPV49	..TLVLQQPPTPGKRSRDDDPGLEPG-ADGK..-..A..PQ--..AVPD-DPDPLP..-..DPEGP	120
HPV4	..-..SRA..LL..EG-NRGN..P..-..-..PLKPREYD..Y-E.....	57
HPV65	..-..SL-R..-..ALVVG-NRGNL..NRPQR-PKP-GY..-..Y-E.....	57
HPV48	..LE..GD..-..A..SQKPT..-..S..-..-..P..-..D..YE-..	49
HPV50	..ANRKD..LE..AV..NQ--Y..R..PNH-P-HQ..Q..Y-F.....	50
HPV60	..L..-..T..EDR-H-R..ESLAL--V..FDYDAE.....	55
BPV1	..-..SLSL..LC..S..-..PPA..V..PS..-..Q..-..Q..-..	45
BPV2	..-..SLSL..LC..S..-..PPA..Y..PS..-..Q..-..Q..-..	44
EEPV	..-..TQ-T..E..CLTLLLD..N..PPF..V..AP-..	44
DPV	..TL..LL..E-T-FTV..PS..E..-..A..KTG.....	46
BPV4	..-..DL-E..T..G..-..SRGR..S..LRD-DHGH..DH..DRL.....	50
HPV41	..-..QRY..DR..RGRRDAET..RKRGSRSPQPLS..-..DEE.....	38
COPV	..L..-..GK..GR..HG..LDGG..-..RGSPEGQ..-..DEE.....	48
CRPV	..QG-K..-..VH..-..DEGQ..G..HQG..C..NEG.....	51
ROPV	..LOY..Q..A..-..RT..IR--..RSSRY-G-F..-..V..T..GGDPDPQ	55
HVP1a	..T..SN..R..PSTTPNS..QD..R--..SDK..D..-..RK.....	50
HPV63	..KL..EKO..R..RGRTT..N..-..LF..A..-..G..-..RGA.....	46
MnPV	..T..-..V..SLQD-TT..GGNQQR--G..-..RGA.....	59

FIG. 9

.... CHARGED REGION

most-likely	DSDSGEVEG	PTPTTPPAPPTG	72	
HPV54	E-TA.QTSN	H-APQT	57	
HPV32	--LC.SHQQ	S-CS-T.-SQ-Y	80	
HPV42	--VDSRHHS	TCS-QT--S-ASP	81	
HPV3	N-S-NSNSN	NI-KP--RK-LN	67	
HPV28	S.--	--KP--RK-LN	60	
HPV10	S--K	G-KI--RR-RN	61	
HPV29	S.T-SSSSNR	-R--P--RK-VH	73	
HPV61	--TET-SS	\$--QHKTTT-S	68	
HPV2a	S--..SI	-G--LRERSER-	79	
HPV27	S--..SI	SG--LRERSER-	76	
HPV57	S--..S-	NS--LRGRSEK-	71	
HPV26	--VDLTPP	S-QS-LS-QLPH	65	
HPV30	EPQ-PT-O	--PDS-L-ESPT	66	
HPV53	P.Q-PT-L	TP-HS-LPO-ES	63	
HPV56	-P-Y.GNQN	L--PES-TQSVS	62	
HPV66 .....	.PEQVNON	L--PES-THTVS	62
HPV18	-TVD	SRRSS	53	
HPV45	--VD	SQSST ..-.D	55	
HPV39	--VQ	SQS-LS--E	56	
HPV70	S.PD	PQKQT	51	
HPV59	--VD.THS	-LSL-	56	
HPV7	ATHRP-S--	E-E-C-SVQW-DV	67	
HPV40	E.TD .....	.CPS-LLWANHS	63
HPV16 .....	.Q-QTP-	--A--LSCC-E	59
HPV35h	GVP-	S--SECDS	58	
HPV31	E.Q-QST-	-----TSCCEA	64	
HPV52	Q.T-QTP-	--S--TTFCGD	58	
HPV33	QTPQ	--PS-LQSCSV	45	
HPV58	--IYQTP-	T--S--QSIQ-A	49	
RhPV1	V.GQTQ-	IQCQG	55	
HVP6b	E.E--.N	SPLA--CVW--L	56	
HPV11	V.-R	PL--CVW--S	55	
HVP44	-PPQ	----ET-SVS	63	
HVP55	-PPQ	----GT-SVS	63	
HVP13	EDLHVPL-	--R-HK-LCVS	62	
PCPV1	--PPTVL-	NSK--LTLCVP	62	
HPV34	V.TQ	--RG	41	
HPV19	PEERPPPLE	HP-PPVTN--GH	119	
HPV25	DPEEKP	OPPEGEVQGHPQPPPVT-PQ-	HL-PP-LP--N-HNDRD	149
HPV20	NRRAGGLGTDHD	PDPEGESPSAPLPPPPQPPPD-Q-	HP-PP--P-HN-RD..S	144
HPV21	GPIPGPGLNRRLTSRNTDSDPEGKCPSSLPPPPPPOPTPPE-OG-	HP-PP--P-NGHDG	152	
HPV14d	LSGGLGTD	QDPDPDKKKCPESOPPP-	HP-PP-NGHNGH	135
HPV5	GPQPAE	HPGG.DQGHP-PP----HN-H	147	
HPV36	HDPEAPLE	GHGH..GHHP-PP--P---N	144	
HPV47	PPVE	HPQGKDRDHP-P--ONGHGK	145	
HPV12	RNPPE-G	HP--P-LSGGDP	129	
HPV8	DGLQP	PLGEGQVEGHPG-GDQPQ-	HP-P--SNGHK	147
HPV24	V.GETPP- .....	.GNEESQP--GE	120
HPV15	EGT-ADGD	D-EK--S--P-E	106	
HPV17	EGSDASGDEN	A--E--QD--E	103	
HPV37	EGTDADGDEN	A--E--V--E	106	
HPV9	-G-E--	-P-Q--LP--E	112	
HPV22	S Geg-PPDD	S-EN-QN--G	95	
HPV23	NGGG-KPKD	-P-EE-QN--G	92	
HPV38	P.EAPTG--GTP	GD-P-ED-QS--P-EG..E	99	
HPV49	E--L-QPP-I	-A-RE--.GAE	140	
HPV4	-EK-NQ-	GQEK--KEEE	77	
HPV65	--DK-NQ-	GQER--KEEE	77	
HPV48	--DENR-N	LE-P--.H-ED	67	
HPV50	--EDD-K-N	TI--DTESHNQN	70	
HPV60	--PT-.NK-N	YP-ESR-V-KDA	75	
BPV1	V.GY-T-LA	R---IF.LQAR-	64	
BPV2	V.GY-T-LA	R---IF.LQAR-	63	
EEPV	E.LAKTGV-P	F-ARL-T-HHHP	65	
DPV	VGPL .....	.ARL-T-HHSP	61
BPV4	RRGR RTP-DE	TRGYRV-GD-RE	71	
HPV41	LT-A...D	P-RR-N-G-RRRL..F	57	
COPV	--EE-A-N	YP-SRS.R-RR-R	69	
CRPV	R.Q..N-N	RP-R-K	63	
ROPV	E	--S-PT-S--P	83	
HPV1a	LDSTQQ-PEDK-NIP	TDGED-EV-EVE	69	
HPV63	H.LYADGL	PT-E...-G-EV-EI--SD	62	
MnPV	RTP-P-TTA	QR-KR-RRAC-RK	81	

FIG. 9 CONT'D